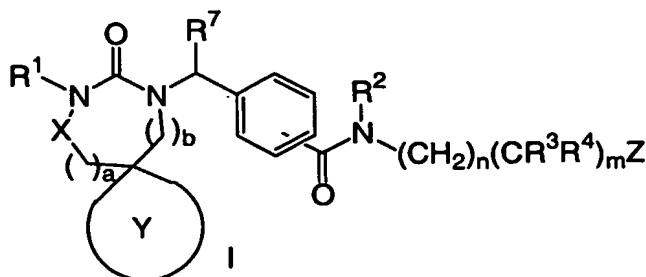


## WHAT IS CLAIMED IS:

1. A compound represented by formula I:



or a pharmaceutically acceptable salt or solvate thereof, wherein:

- 5 a and b are independently selected from the integers 0 and 1, such that the sum of a and b is 0 or 1;

X is selected from CH<sub>2</sub> and C(O);

R<sup>1</sup> is selected from the group consisting of:

- (1) C<sub>1-15</sub> alkyl optionally substituted with up to five groups as follows: (a) 1-3 OH groups; (b) 1 oxo group; (c) 1-5 halo groups, up to a perhaloalkyl group; (d) 1-3 C<sub>1-6</sub> alkoxy groups optionally substituted with up to five halo or a perhaloalkoxy, or up to 2 hydroxy or CO<sub>2</sub>R<sup>6</sup> groups; (e) 1-2 CO<sub>2</sub>R<sup>6</sup> groups and (f) 1-2 phenyl groups, each optionally substituted as follows: 1-5 halo groups, (2) 1-2 OH, CO<sub>2</sub>R<sup>6</sup>, CN or S(O)<sub>p</sub>R<sup>5</sup> groups, and (3) 1-2 C<sub>1-6</sub> alkyl or alkoxy groups, each optionally substituted with 1-5 halo, up to perhaloalkyl, and 1-2 OH or CO<sub>2</sub>R<sup>6</sup> groups; and

- (2) aryl or heteroaryl, optionally substituted as set forth below:

- (a) 1-3 hydroxy groups; (b) 1-5 halo groups; (c) 1-3 C<sub>1-15</sub> alkyl or alkoxy groups, each optionally substituted with up to five halo and 1-2 hydroxy or CO<sub>2</sub>R<sup>6</sup> groups; (d) 1-2 CO<sub>2</sub>R<sup>6</sup>, CN, S(O)<sub>p</sub>R<sup>5</sup> or CONR<sup>9</sup>R<sup>10</sup> groups; (e) NR<sup>9</sup>R<sup>10</sup>; (f) SCF<sub>3</sub>; (g) phenyl, heteroaryl or O-phenyl, said group being optionally substituted with 1-5 halo groups, 1-2 OH, CO<sub>2</sub>R<sup>6</sup>, CN or S(O)<sub>n</sub>R<sup>5</sup> groups, and 1-2 C<sub>1-6</sub> alkyl or alkoxy groups, each optionally substituted with 1-5 halo, up to perhaloalkyl, and 1-2 OH or CO<sub>2</sub>R<sup>6</sup> groups;

R<sup>2</sup> represents H or C<sub>1-6</sub>alkyl;

R<sup>3</sup> represents H or F;

- 25 R<sup>4</sup> is selected from the group consisting of H, F and OH;

or R<sup>3</sup> and R<sup>4</sup> are taken in combination and represent an oxo group;

R<sup>5</sup> represents a C<sub>1-10</sub>alkyl group;

R<sup>6</sup> represents H or C<sub>1-10</sub>alkyl, optionally substituted with OH, OC<sub>1-6</sub>alkyl, CO<sub>2</sub>H, CO<sub>2</sub>C<sub>1-6</sub>alkyl, and 1-3 halo groups;

$R^7$  represents H,  $CO_2R^6$ ,  $C_{1-6}$ alkyl optionally substituted with OH,  $OC_{1-6}$ alkyl,  $CO_2R^6$  or 1-3 halo groups;

$R^8$  and  $R^9$  are independently selected from H and  $C_{1-6}$ alkyl;

$R^{10}$  is H or is independently selected from:

- 5 (a)  $C_{1-10}$ alkyl, optionally substituted with OH,  $OC_{1-6}$ alkyl,  $CO_2H$ ,  $CO_2C_{1-6}$ alkyl, and 1-3 halo groups; (b) aryl or  $C_{1-6}$  alkaryl, each optionally substituted with 1-5 halos and 1-3 members selected from the group consisting of: CN, OH,  $C_{1-10}$ alkyl and  $OC_{1-10}$  alkyl, said alkyl and alkoxy being further optionally substituted with 1-5 halo groups up to perhalo; (c) heterocycle, or  $C_{1-6}$ alkyl-heterocycle, optionally substituted with 1-5 halo groups and 1-3 groups  
10 selected from: oxo,  $C_{1-10}$ alkyl and  $OC_{1-10}$  alkyl, said alkyl and alkoxy being further optionally substituted with 1-5 halo groups up to perhalo; and (d) heteroaryl or  $C_{1-6}$ alkyl-heteroaryl, optionally substituted with 1-5 halo groups and 1-3 groups selected from:  $C_{1-10}$ alkyl and  $OC_{1-10}$  alkyl, said alkyl and alkoxy being further optionally substituted with 1-5 halo groups up to perhalo;

15  $R^{11}$  is independently selected from the group consisting of:

- (a)  $C_{1-10}$ alkyl, optionally substituted with OH,  $OC_{1-6}$ alkyl,  $CO_2H$ ,  $CO_2C_{1-6}$ alkyl, and 1-3 halo groups; (b) aryl or  $C_{1-6}$  alkaryl, each optionally substituted with 1-5 halos and 1-3 members selected from the group consisting of: CN, OH,  $C_{1-10}$ alkyl and  $OC_{1-10}$  alkyl, said alkyl and alkoxy being further optionally substituted with 1-5 halo groups up to perhalo; (c)  
20 heterocycle, or  $C_{1-6}$ alkyl-heterocycle, optionally substituted with 1-5 halo groups and 1-3 groups selected from: oxo,  $C_{1-10}$ alkyl and  $OC_{1-10}$  alkyl, said alkyl and alkoxy being further optionally substituted with 1-5 halo groups up to perhalo; and (d) heteroaryl or  $C_{1-6}$ alkyl-heteroaryl, optionally substituted with 1-5 halo groups and 1-3 groups selected from:  $C_{1-10}$ alkyl and  $OC_{1-10}$  alkyl, said alkyl and alkoxy being further optionally substituted with 1-5 halo groups up to  
25 perhalo;

$Y$  represents a 4 to 8 membered spirocarbocyclic ring or a spiroheterocyclic ring containing up to three heteroatoms, 0-1 of which are selected from O and S and 0-3 of which are N,

30 said spirocarbocyclic or spiroheterocyclic ring being optionally substituted on either carbon or nitrogen atoms with up to three groups independently selected as follows:

- (a) 1-2 phenyl groups, each being optionally substituted with one to five groups independently selected from the group consisting of: (1) 1-3 hydroxy groups; (2) 1-5 halo groups; (3) 1-3  $C_{1-8}$ alkyl or alkoxy groups, each being further optionally substituted with 1-5 halo or 1-2 OH or  $CO_2R^6$  groups, and (4) 1-2  $CO_2R^6$ , CN,  $S(O)_pR^5$ ,  $CONR^9R^{10}$  or  $NO_2$  groups;

(b) C<sub>1-10</sub> alkyl optionally substituted with 1-5 groups selected as follows: (i) 1-3 hydroxy groups; (ii) 1 oxo group; (iii) 1-5 halo groups up to perhalo; (iv) 1-3 C<sub>1-10</sub> alkoxy groups, optionally substituted with 1-5 halo groups up to perhalo, or 1-2 hydroxy or CO<sub>2</sub>R<sup>6</sup> groups; (v) 1-2 CO<sub>2</sub>R<sup>6</sup> groups; (vi) phenyl, optionally substituted with one to five groups independently selected from the group consisting of: (a) 1-3 hydroxy groups; (b) 1-5 halo groups; (c) 1-3 C<sub>1-6</sub> alkyl or alkoxy groups, optionally substituted with 1-5 halo groups up to perhalo, or 1-2 hydroxy or CO<sub>2</sub>R<sup>6</sup> groups; (d) 1-2 CO<sub>2</sub>R<sup>6</sup>, CN, S(O)<sub>p</sub>R<sup>5</sup>, CONR<sup>9</sup>R<sup>10</sup> or NO<sub>2</sub> groups; (e) 1-2 phenyl rings, each of which is optionally substituted as follows: 1-3 C<sub>1-10</sub> alkyl or alkoxy groups, each being further optionally substituted with 1-5 halo up to perhalo, or 1-2 hydroxy or CO<sub>2</sub>R<sup>6</sup> groups;

said spirocarbocyclic or spiroheterocyclic ring being further optionally substituted on a carbon atom with a member selected from the group consisting of:

(a) -NR<sup>8</sup>-C(O)-NR<sup>9</sup>R<sup>10</sup>; (b) -NR<sup>8</sup>-CO<sub>2</sub>R<sup>11</sup>; (c) -NR<sup>8</sup>-C(O)R<sup>11</sup>; (d) -NR<sup>9</sup>R<sup>10</sup>; (e) -NR<sup>8</sup>SO<sub>2</sub>R<sup>11</sup>; (f) -SO<sub>2</sub>-NR<sup>9</sup>R<sup>10</sup>; (g) -C(O)NR<sup>9</sup>R<sup>10</sup> and (h) -OC(O)-NR<sup>9</sup>R<sup>10</sup>;

and when said ring contains a nitrogen atom, said ring being further optionally substituted on the nitrogen atom with a member selected from the group consisting of:

(a) -C(O)NR<sup>9</sup>R<sup>10</sup>; (b) -CO<sub>2</sub>R<sup>11</sup>; (c) C(O)R<sup>11</sup>; and (d) -SO<sub>2</sub>R<sup>11</sup>;

m and p are independently selected from 0, 1 and 2, and n is an integer from 0 to 6,

when both m and n are zero, Z is selected from 5-tetrazolyl and 5-(2-oxo-1,3,4-oxadiazolyl) and when one of m and n is other than zero, Z is selected from the group consisting of: CO<sub>2</sub>R<sup>6</sup>, with R<sup>6</sup> as defined above, 5-tetrazolyl and 5-(2-oxo-1,3,4-oxadiazolyl).

2. A compound in accordance with claim 1 wherein:

R<sup>1</sup> is selected from the group consisting of:

(1) C<sub>1-6</sub> alkyl optionally substituted with 1-3 groups selected from: OH, halo, C<sub>1-3</sub> alkoxy, halo-C<sub>1-3</sub>alkoxy and phenyl, said phenyl being optionally substituted with 1-3 halo groups, SO<sub>2</sub>R<sup>5</sup>, and 1-2 C<sub>1-3</sub>alkyl or alkoxy groups optionally substituted with 1-3 halo groups, and

(2) aryl optionally substituted with 1-3 halo groups; 1-2 C<sub>1-3</sub>alkyl or alkoxy groups, each optionally substituted with 1-3 halo groups; -NR<sup>9</sup>R<sup>10</sup> wherein R<sup>9</sup> and R<sup>10</sup> are H or methyl; SCF<sub>3</sub> and heteroaryl.

3. A compound in accordance with claim 2 wherein:

R<sup>1</sup> represents phenyl optionally substituted with 1-2 groups selected from Br, Cl; trifluoromethyl and trifluoromethoxy.

4. A compound in accordance with claim 1 wherein: X represents CH<sub>2</sub>.

5. A compound in accordance with claim 1 wherein a and b represent 0 or a represents 1 and b represents 0.

6. A compound in accordance with claim 1 wherein:

Y represents a spiroC<sub>4-8</sub>cycloalkyl group or a 5-6 membered spiroheterocyclic group containing 1 N atom,

said ring being optionally substituted with a C<sub>1-6</sub> alkyl group, which is optionally substituted with 1-3 halo groups or 1 Phenyl ring that is optionally substituted with 1-2 halo, 1-2 C<sub>1-3</sub> alkyl or alkoxy groups, said alkyl and alkoxy substituents being further optionally substituted with 1-3 halo groups.

7. A compound in accordance with claim 6 wherein:

Y represents a spirocyclohexyl or spiropiperidinyl group that is substituted with a C<sub>1-4</sub> alkyl group that is optionally substituted with a phenyl ring.

8. A compound in accordance with claim 7 wherein:

Y represents a spirocyclohexyl group substituted with a t-butyl group at the 4 position.

9. A compound in accordance with claim 1 wherein: R<sup>2</sup> is H or C<sub>1-3</sub>alkyl.

10. A compound in accordance with claim 9 wherein: R<sup>2</sup> represents H.

11. A compound in accordance with claim 1 wherein: R<sup>7</sup> represents H or methyl.

12. A compound in accordance with claim 11 wherein R<sup>7</sup> represents H.

13. A compound in accordance with claim 1 wherein:

n and m represent 0, and Z represents a 5-tetrazolyl group.

14. A compound in accordance with claim 1 wherein:  
m represents 0, n represents 2, and Z represents a  $\text{CO}_2\text{R}^6$  group.

15. A compound in accordance with claim 1 wherein:  
5 m and n each represent 1,  $\text{R}^3$  represents OH,  $\text{R}^4$  represents H and Z represents a  $\text{CO}_2\text{R}^6$  group.

16. A compound in accordance with claim 1 wherein:  
 $\text{R}^1$  is selected from the group consisting of:

(1)  $\text{C}_{1-6}$  alkyl optionally substituted with 1-3 groups selected from: OH, halo,  $\text{C}_{1-3}$   
10 alkoxy, halo- $\text{C}_{1-3}$ alkoxy and phenyl, said phenyl being optionally substituted with 1-3 halo  
groups,  $\text{SO}_2\text{R}^5$ , and 1-2  $\text{C}_{1-3}$ alkyl or alkoxy groups optionally substituted with 1-3 halo groups,  
and

(2) aryl optionally substituted with 1-3 halo groups; 1-2  $\text{C}_{1-3}$ alkyl or alkoxy groups,  
each optionally substituted with 1-3 halo groups;  $-\text{NR}^9\text{R}^{10}$  wherein  $\text{R}^9$  and  $\text{R}^{10}$  are H or methyl;  
15  $\text{SCF}_3$  and heteroaryl; .

X represents  $\text{CH}_2$ ;

a and b represent 0 or a represents 1 and b represents 0;

Y represents a spiro $\text{C}_{4-8}$ cycloalkyl group or a 5-6 membered spiroheterocyclic  
group containing 1 N atom,

20 said ring being optionally substituted with a  $\text{C}_{1-6}$  alkyl group, which is optionally  
substituted with 1-3 halo groups or 1 Phenyl ring that is optionally substituted with 1-2 halo, 1-2  
 $\text{C}_{1-3}$  alkyl or alkoxy groups, said alkyl and alkoxy substituents being further optionally substituted  
with 1-3 halo groups;

$\text{R}^2$  is H or  $\text{C}_{1-3}$ alkyl;

25  $\text{R}^7$  represents H or methyl;

m and n represent 0, and Z represents a 5-tetrazolyl group.

17. A compound in accordance with claim 1 wherein:

$\text{R}^1$  is selected from the group consisting of:

30 (1)  $\text{C}_{1-6}$  alkyl optionally substituted with 1-3 groups selected from: OH, halo,  $\text{C}_{1-3}$   
alkoxy, halo- $\text{C}_{1-3}$ alkoxy and phenyl, said phenyl being optionally substituted with 1-3 halo  
groups,  $\text{SO}_2\text{R}^5$ , and 1-2  $\text{C}_{1-3}$ alkyl or alkoxy groups optionally substituted with 1-3 halo groups,  
and

(2) aryl optionally substituted with 1-3 halo groups; 1-2 C<sub>1-3</sub>alkyl or alkoxy groups, each optionally substituted with 1-3 halo groups; -NR<sup>9</sup>R<sup>10</sup> wherein R<sup>9</sup> and R<sup>10</sup> are H or methyl; SCF<sub>3</sub> and heteroaryl;

X represents CH<sub>2</sub>;

5 a and b represent 0 or a represents 1 and b represents 0;

Y represents a spiroC<sub>4-8</sub>cycloalkyl group or a 5-6 membered spiroheterocyclic group containing 1 N atom,

said ring being optionally substituted with a C<sub>1-6</sub> alkyl group, which is optionally substituted with 1-3 halo groups or 1 Phenyl ring that is optionally substituted with 1-2 halo, 1-2 C<sub>1-3</sub> alkyl or alkoxy groups, said alkyl and alkoxy substituents being further optionally substituted with 1-3 halo groups;

R<sup>2</sup> is H or C<sub>1-3</sub>alkyl;

R<sup>7</sup> represents H or methyl;

m represents 0, n represents 2, and Z represents a CO<sub>2</sub>R<sup>6</sup> group.

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18. A compound in accordance with claim 1 wherein:

R<sup>1</sup> is selected from the group consisting of:

(1) C<sub>1-6</sub> alkyl optionally substituted with 1-3 groups selected from: OH, halo, C<sub>1-3</sub> alkoxy, halo-C<sub>1-3</sub>alkoxy and phenyl, said phenyl being optionally substituted with 1-3 halo groups, SO<sub>2</sub>R<sup>5</sup>, and 1-2 C<sub>1-3</sub>alkyl or alkoxy groups optionally substituted with 1-3 halo groups, and

(2) aryl optionally substituted with 1-3 halo groups; 1-2 C<sub>1-3</sub>alkyl or alkoxy groups, each optionally substituted with 1-3 halo groups; -NR<sup>9</sup>R<sup>10</sup> wherein R<sup>9</sup> and R<sup>10</sup> are H or methyl; SCF<sub>3</sub> and heteroaryl; .

25

X represents CH<sub>2</sub>;

a and b represent 0 or a represents 1 and b represents 0;

Y represents a spiroC<sub>4-8</sub>cycloalkyl group or a 5-6 membered spiroheterocyclic group containing 1 N atom,

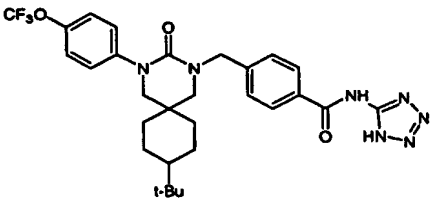
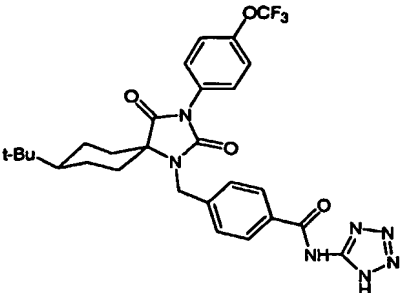
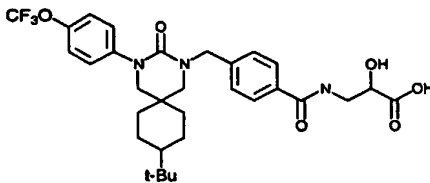
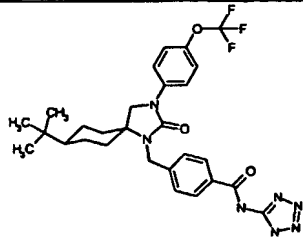
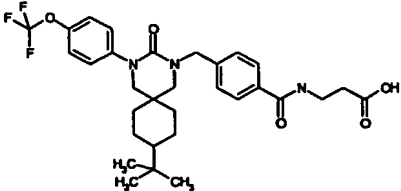
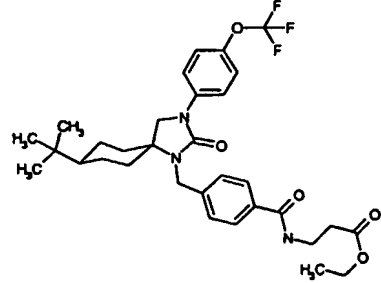
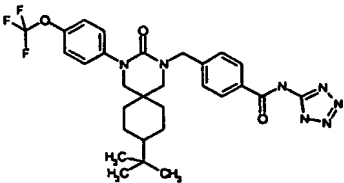
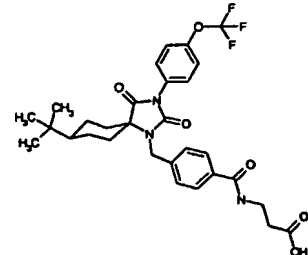
said ring being optionally substituted with a C<sub>1-6</sub> alkyl group, which is optionally substituted with 1-3 halo groups or 1 Phenyl ring that is optionally substituted with 1-2 halo, 1-2 C<sub>1-3</sub> alkyl or alkoxy groups, said alkyl and alkoxy substituents being further optionally substituted with 1-3 halo groups;

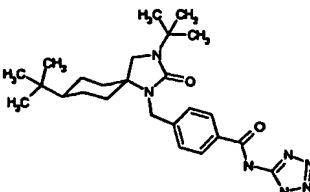
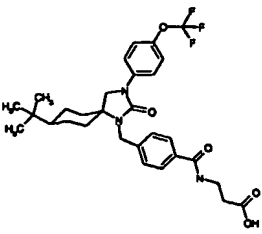
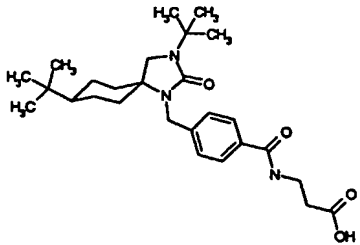
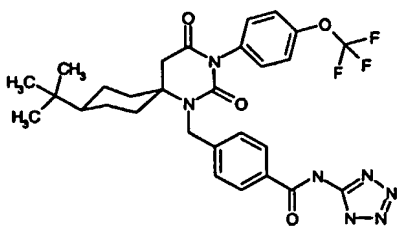
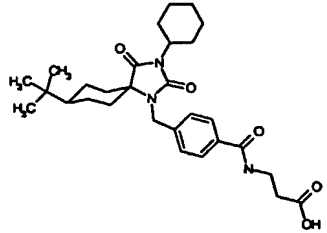
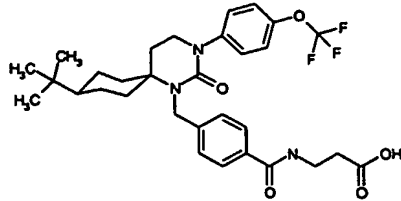
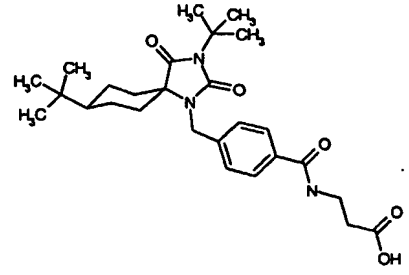
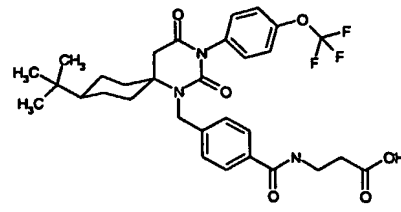
30 R<sup>2</sup> is H or C<sub>1-3</sub>alkyl;

R<sup>7</sup> represents H or methyl;

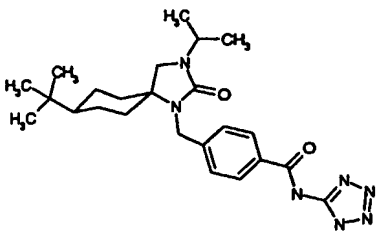
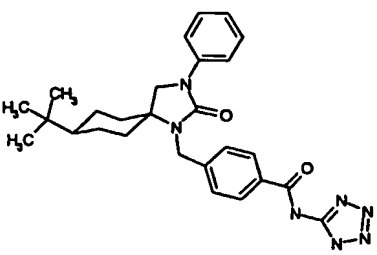
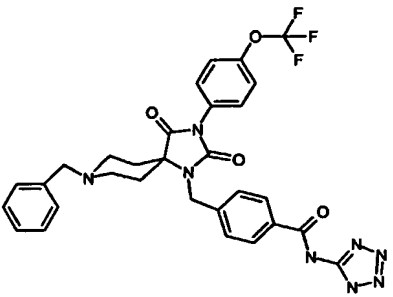
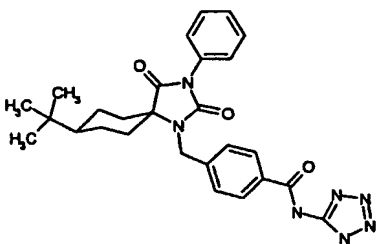
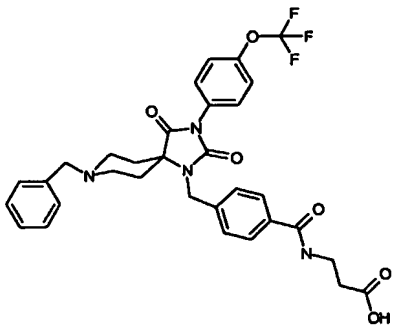
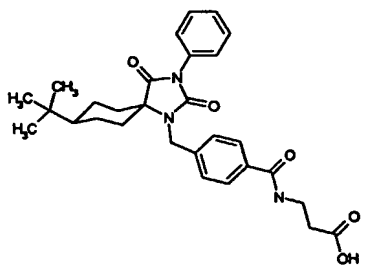
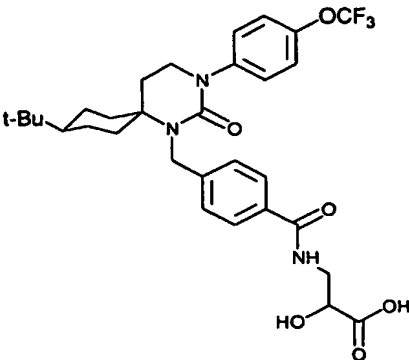
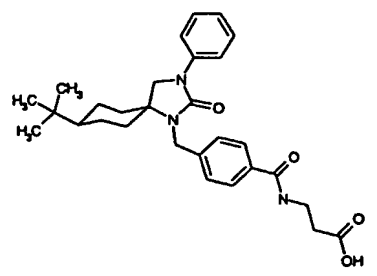
m and n each represent 1, R<sup>3</sup> represents OH, R<sup>4</sup> represents H and Z represents a CO<sub>2</sub>R<sup>6</sup> group.

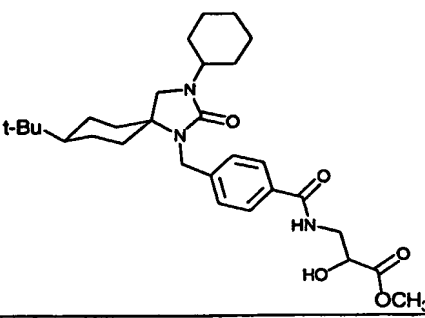
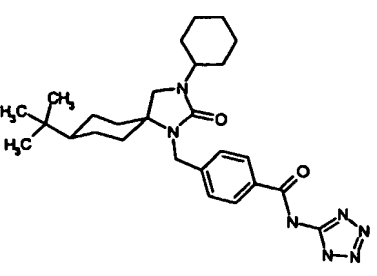
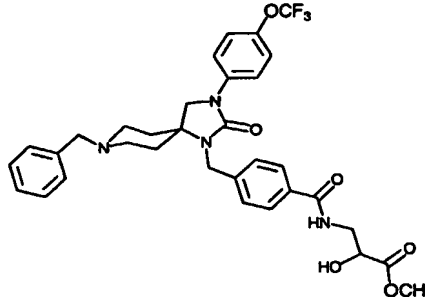
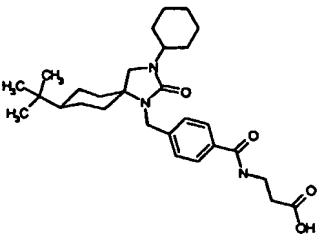
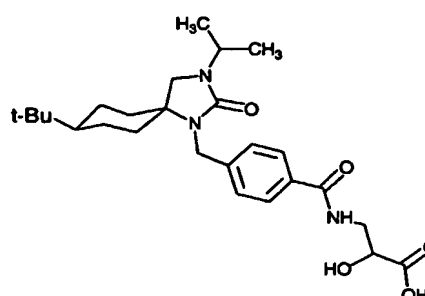
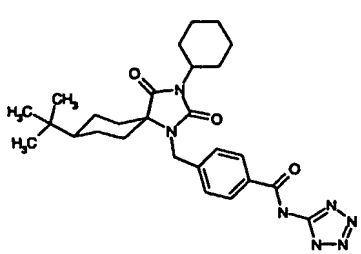
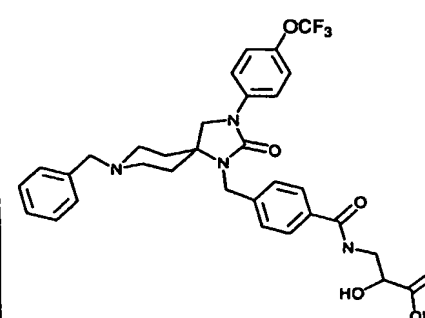
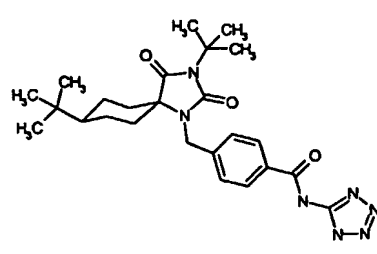
19. A compound in accordance with claim 1 selected from the following table:

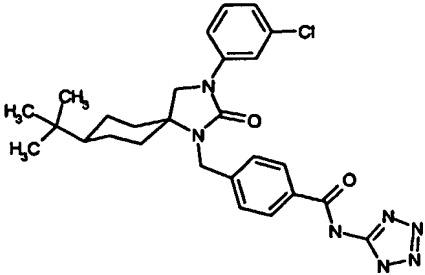
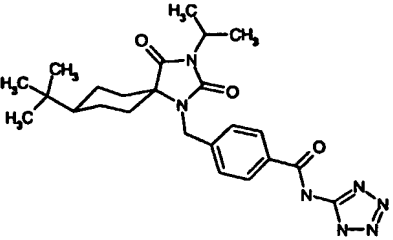
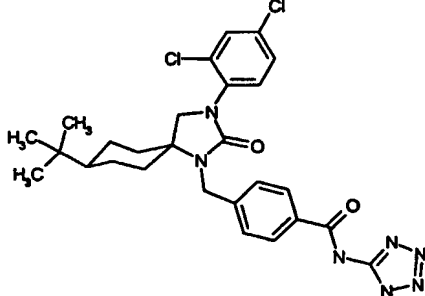
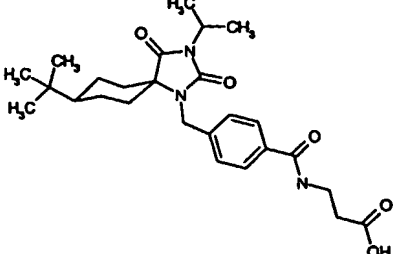
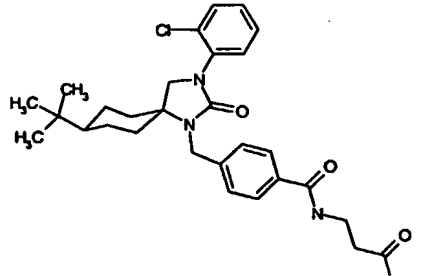
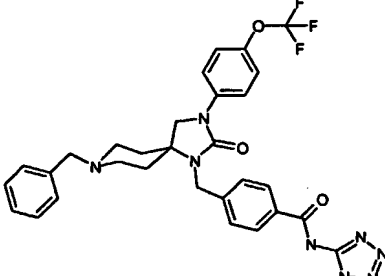
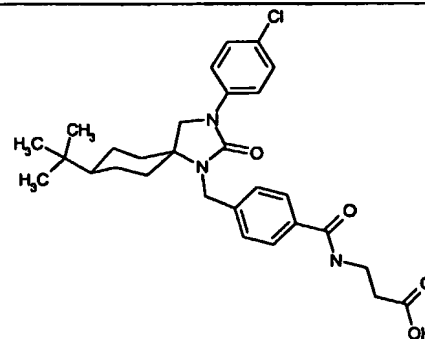
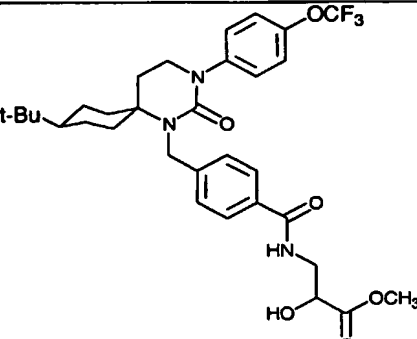
TABLE 1			
	Compound		Compound
			
			
			
			

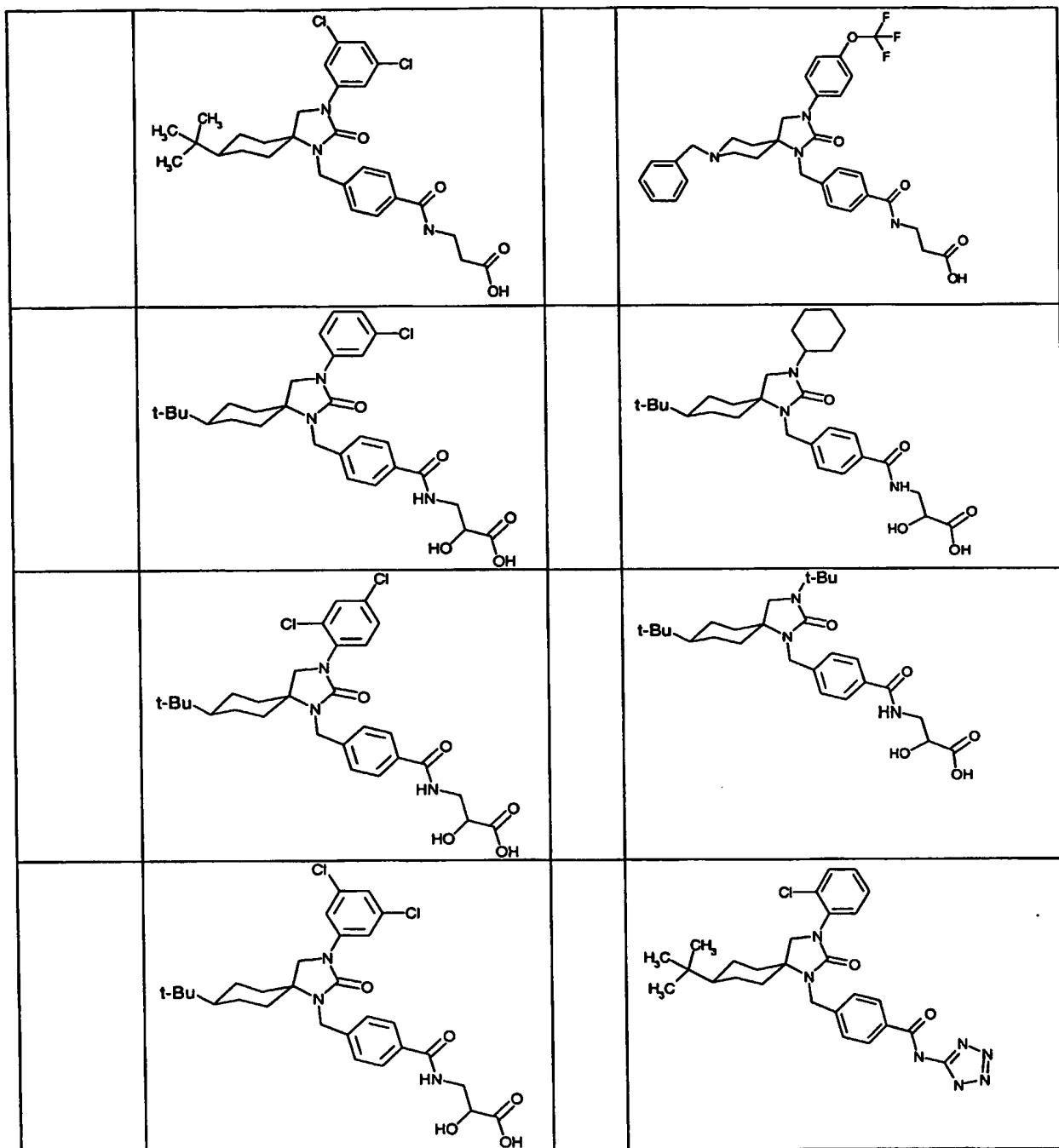
			
			
			
			

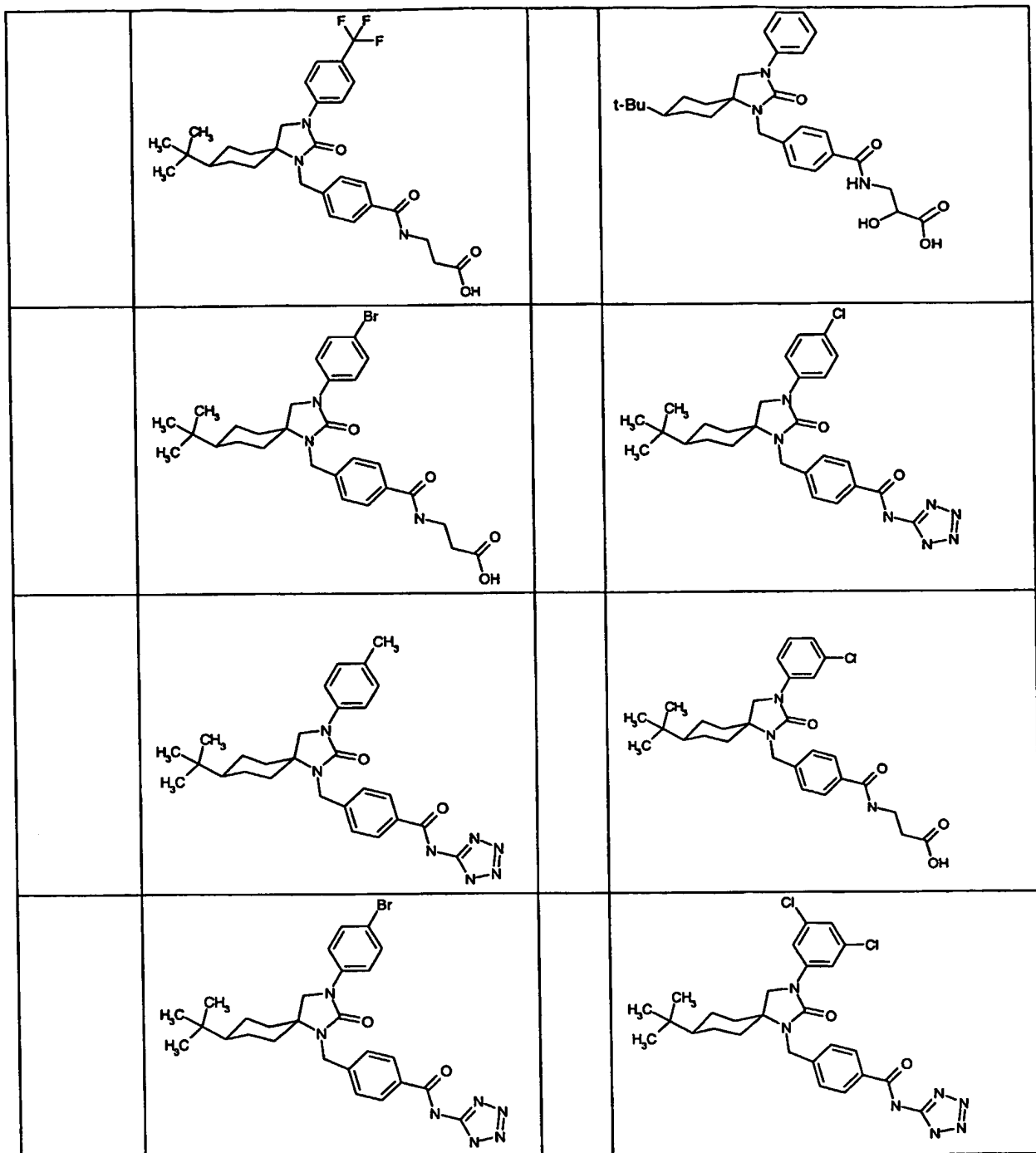


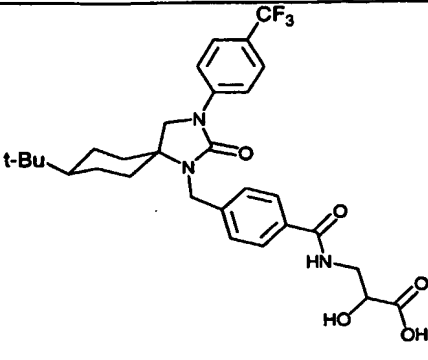
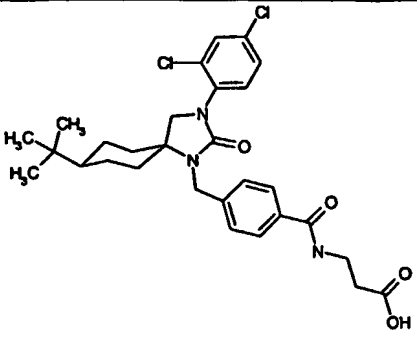
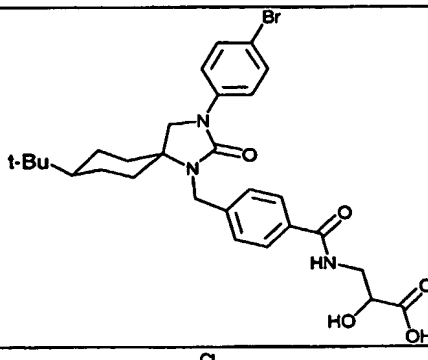
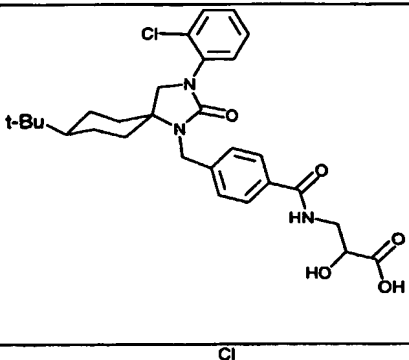
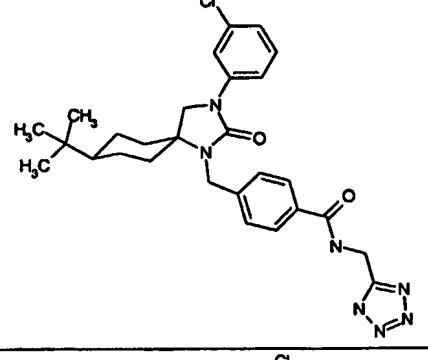
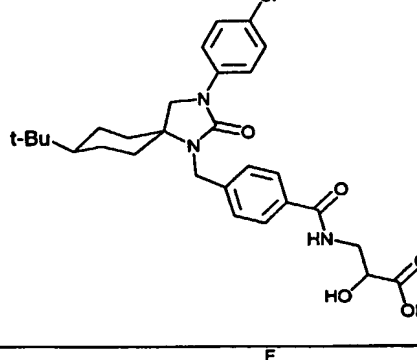
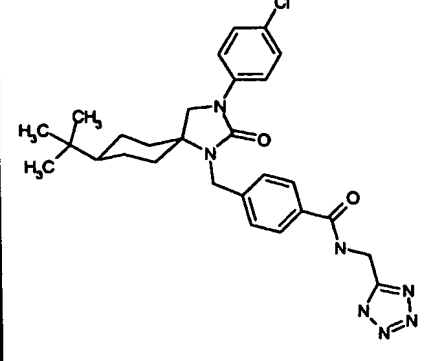
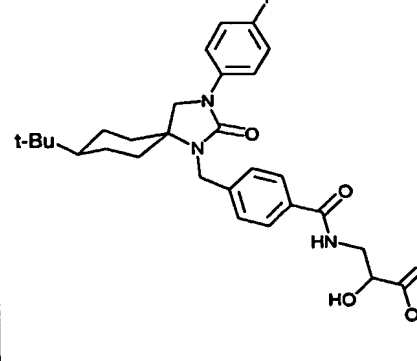
			
			
			
			

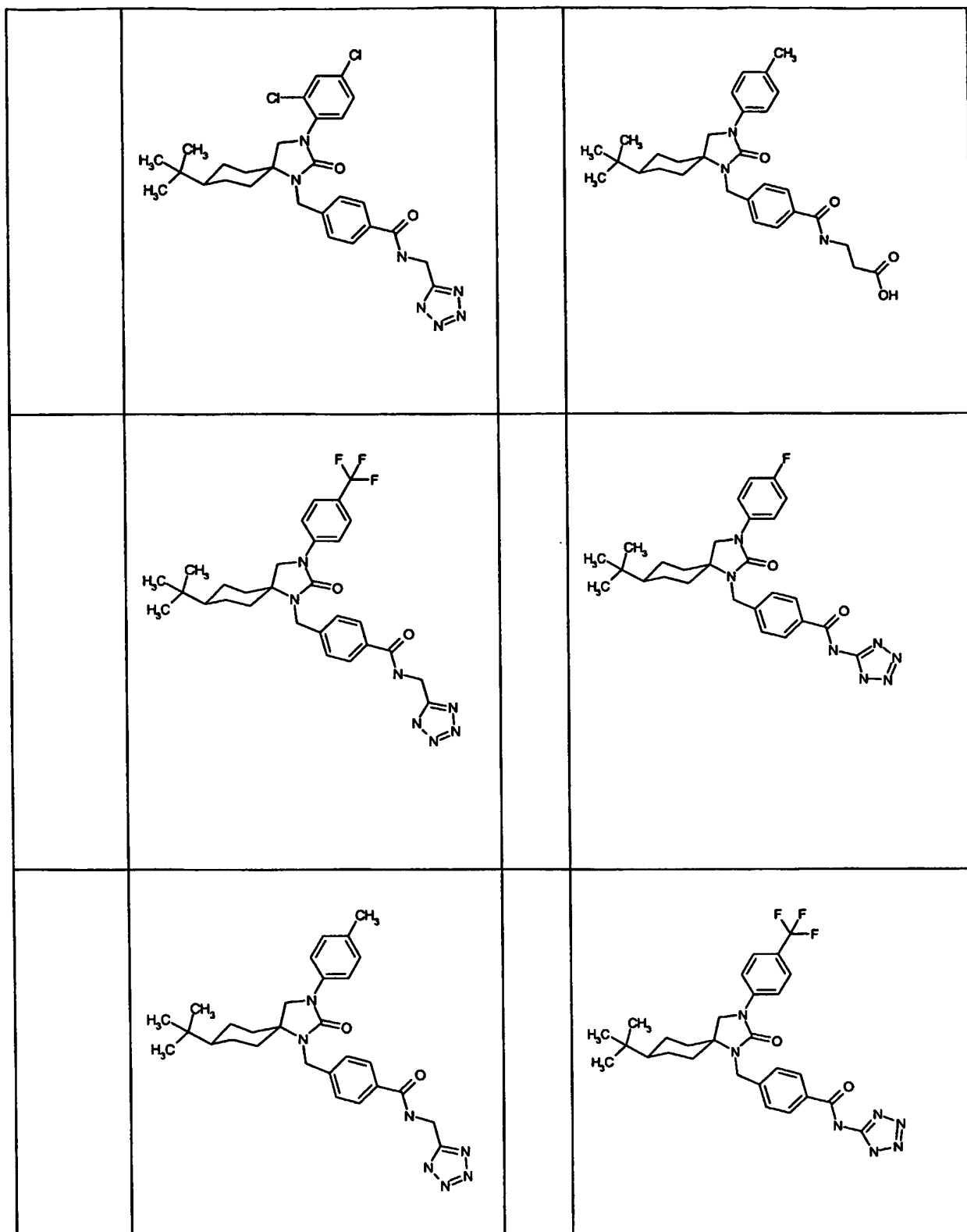
			
			
			
			

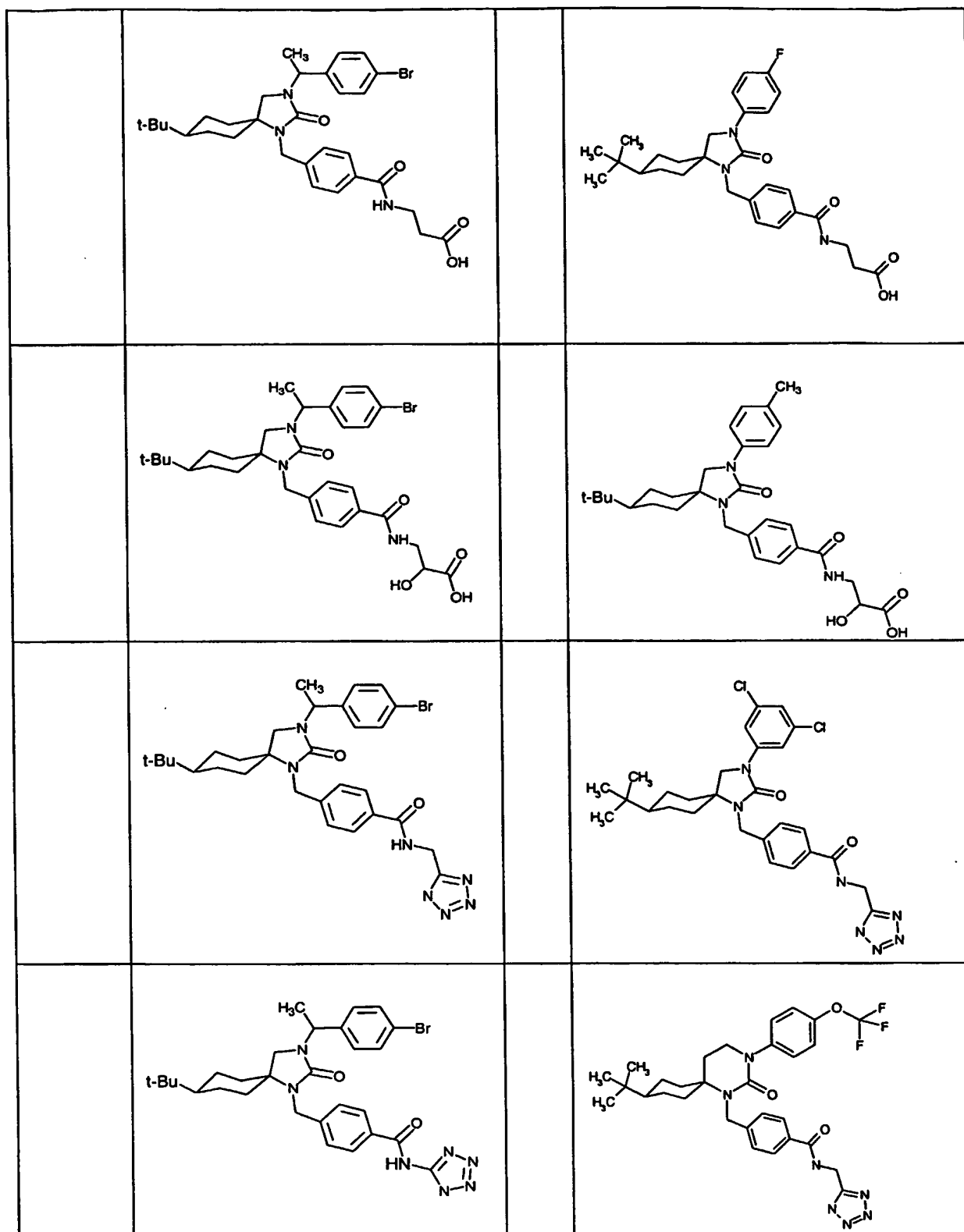
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	 <chem>CC1(C)CCC2(C1)C(=O)N(C2Cc3ccc(cc3)C(=O)N4NNN=N4)C(=O)N5C(=O)c6cc(Cl)cc(Cl)c65</chem>		 <chem>CC(C)C1C(C)CCC2(C1)C(=O)N(C2Cc3ccc(cc3)C(=O)NCCC(=O)O)C(=O)N(C)C</chem>
	 <chem>CC1(C)CCC2(C1)C(=O)N(C2Cc3ccc(cc3)C(=O)NCCC(=O)O)C(=O)N4C(=O)c5ccccc5Cl4</chem>		 <chem>COc1ccc(cc1OC(F)(F)F)N2C(=O)C3Cc4ccc(cc4)C(=O)N5NNN=N5C3CCN(C3Cc6ccccc6)CC2</chem>
	 <chem>CC1(C)CCC2(C1)C(=O)N(C2Cc3ccc(cc3)C(=O)NCCC(=O)O)C(=O)N4C(=O)c5ccc(Cl)cc54</chem>		 <chem>COc1ccc(cc1)N2C(=O)C3Cc4ccc(cc4)C(=O)NCCC(=O)O3CCN(C3Cc5ccccc5)CC2</chem>



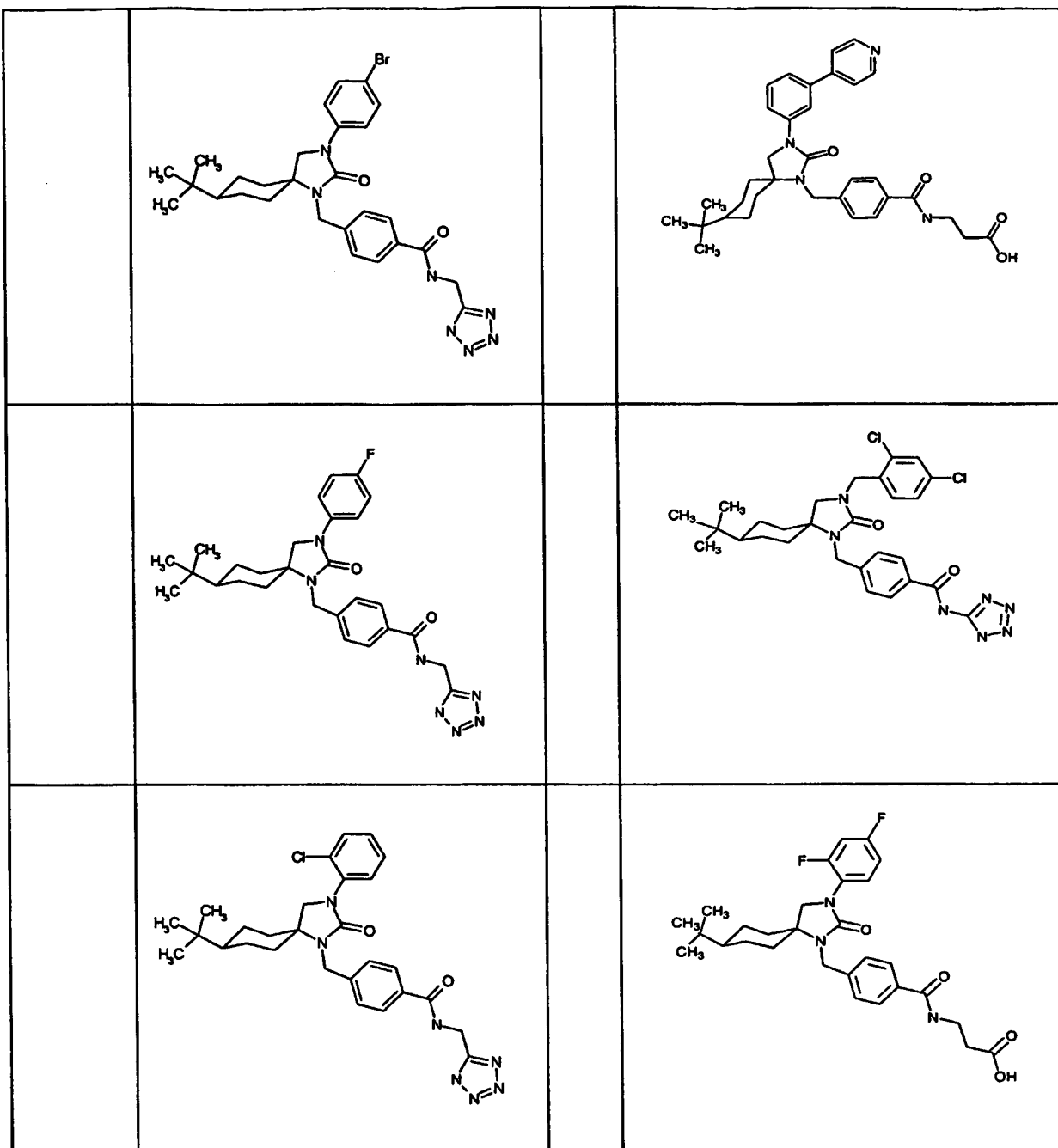


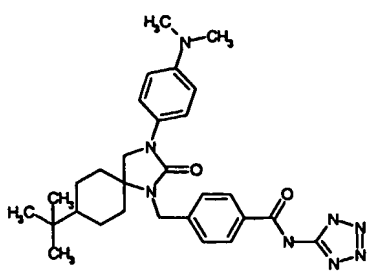
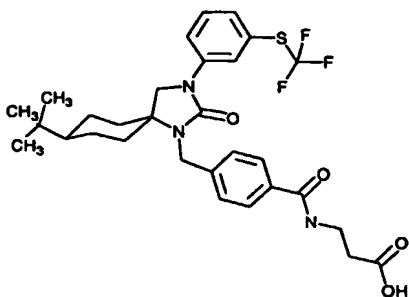
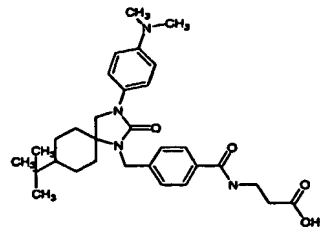
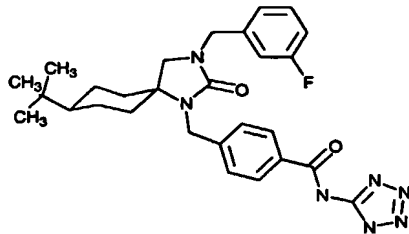
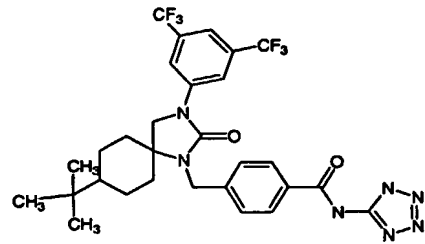
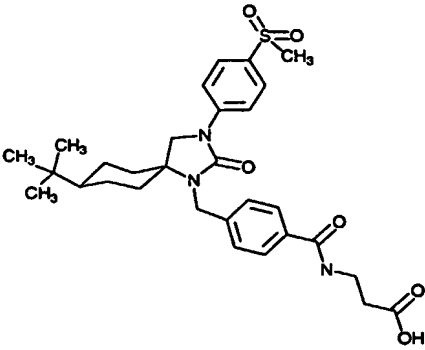
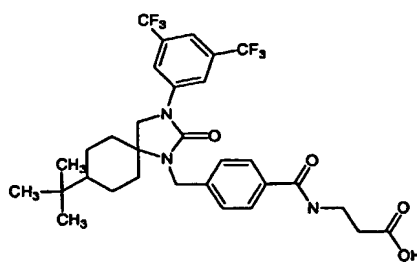
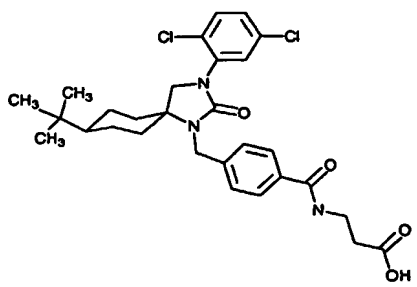
	 <chem>CC(C)(C)C1CCC2C(C1)N(C(=O)NCC(=O)O)C(=O)N(C2)c3ccc(C(F)(F)F)cc3</chem>		 <chem>CC(C)C1CCC2C(C1)N(C(=O)NCC(=O)O)C(=O)N(C2)c3cc(Cl)cc(Cl)c3</chem>
	 <chem>CC(C)(C)C1CCC2C(C1)N(C(=O)NCC(=O)O)C(=O)N(C2)c3ccc(Br)cc3</chem>		 <chem>CC(C)(C)C1CCC2C(C1)N(C(=O)NCC(=O)O)C(=O)N(C2)c3cc(Cl)ccc3</chem>
	 <chem>CC(C)C1CCC2C(C1)N(C(=O)NCC(=O)O)C(=O)N(C2)c3ccc(Cl)cc3</chem>		 <chem>CC(C)(C)C1CCC2C(C1)N(C(=O)NCC(=O)O)C(=O)N(C2)c3ccc(Cl)cc3</chem>
	 <chem>CC(C)C1CCC2C(C1)N(C(=O)NCC(=O)O)C(=O)N(C2)c3ccc(Cl)cc3</chem>		 <chem>CC(C)(C)C1CCC2C(C1)N(C(=O)NCC(=O)O)C(=O)N(C2)c3ccc(F)cc3</chem>

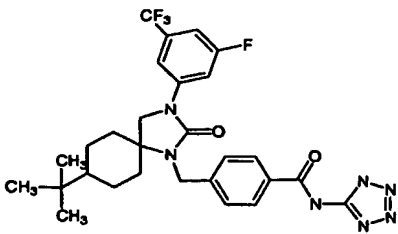
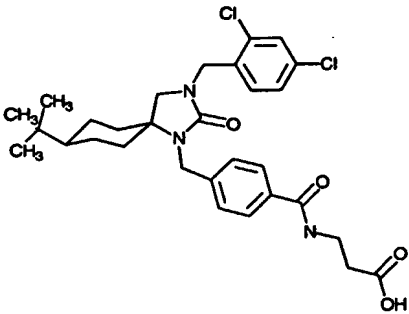
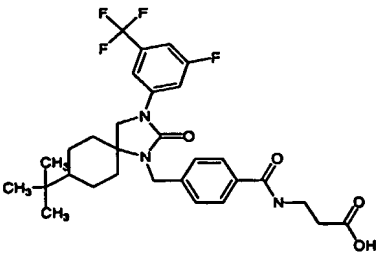
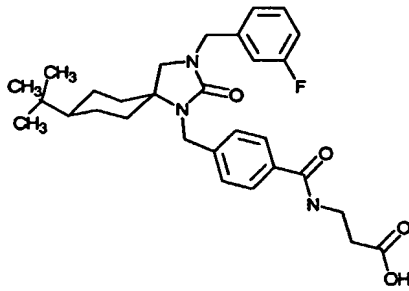
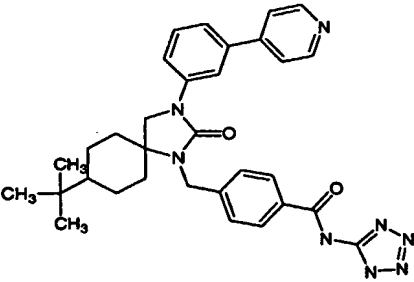
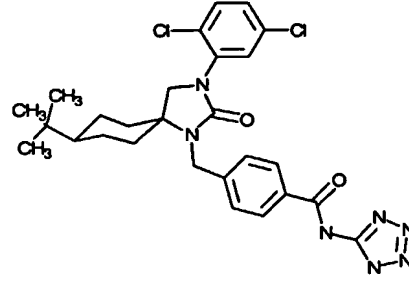
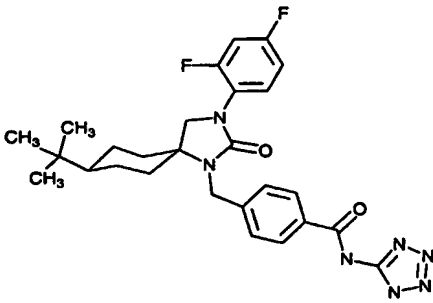
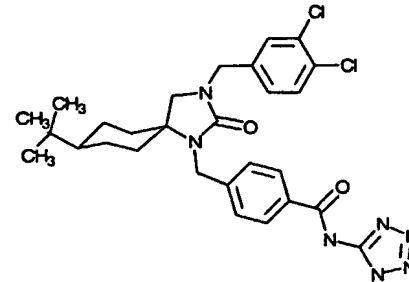


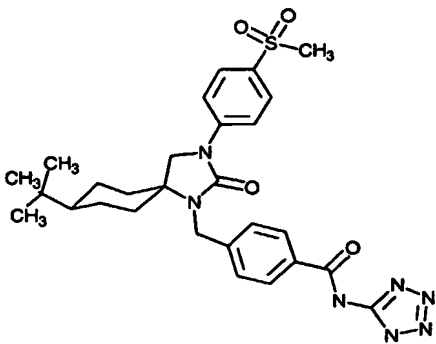
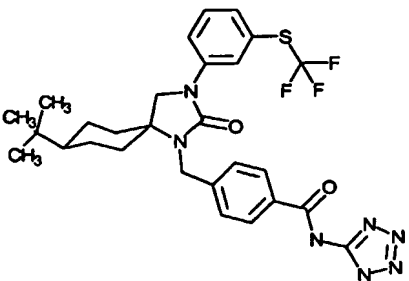
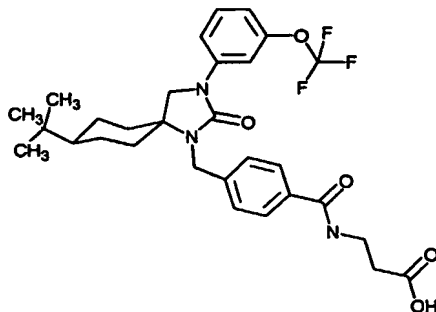
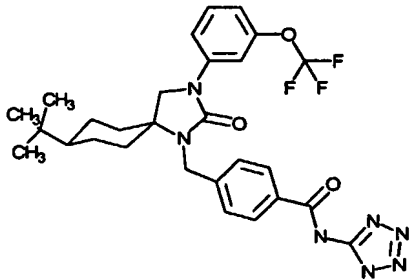
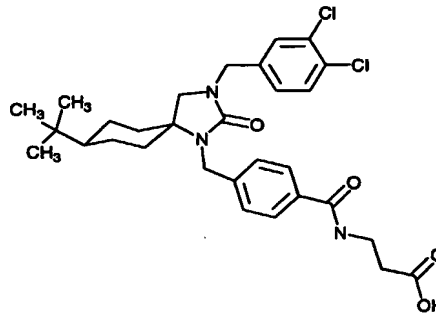
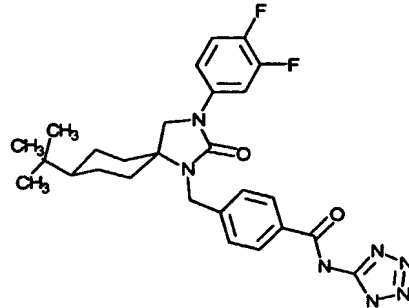
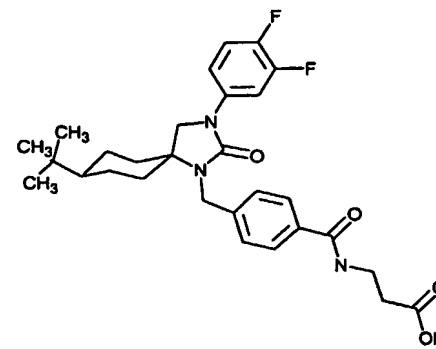
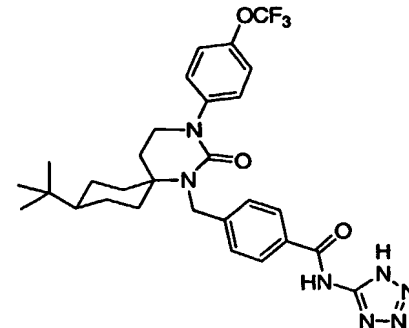


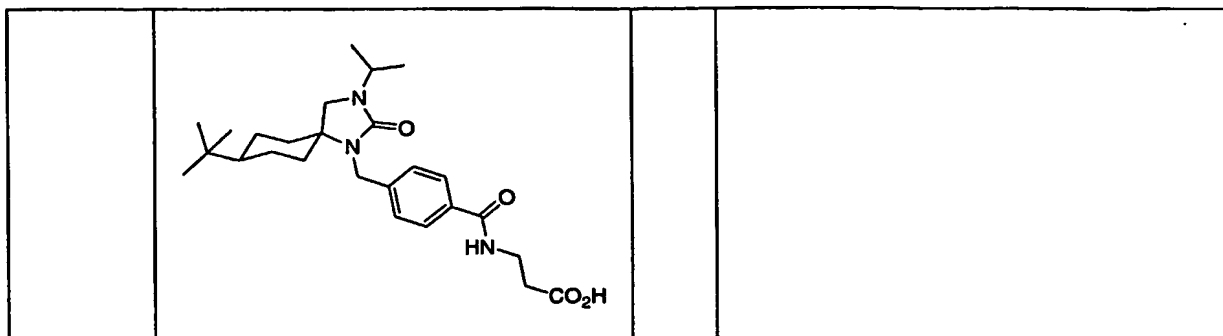






or a pharmaceutically acceptable salt or solvate thereof

20. A pharmaceutical composition comprising a compound in accordance with  
5 claim 1 in combination with a pharmaceutically acceptable carrier.

21. A method of treating type 2 diabetes mellitus in a mammalian patient in  
need of such treatment comprising administering to said patient a compound in accordance with  
claim 1 in an amount that is effective to treat said type 2 diabetes mellitus.

10